

**NON-VOLATILE SONOS MEMORY DEVICE AND  
METHOD FOR MANUFACTURING THE SAME**

**ABSTRACT OF THE DISCLOSURE**

5       A non-volatile SONOS memory device includes a semiconductor substrate having a source region and a drain region. A channel is formed between the source region and the drain region. A gate insulation layer including a nitride layer is formed over the channel, and a gate is formed over the gate insulation layer. The channel is a stepped 10 channel including a top part, an inclined part and a bottom part. The nitride layer is formed over the inclined part and the bottom part, and the top part of the channel is adjacent to the source region and the bottom part of the channel is adjacent to the drain region